

## Claims

1. A sound system comprising:

four loudspeakers, and

at least one signal processing device connected before two of the four  
loudspeakers, the two loudspeakers forming a pair,

wherein the at least one signal processing device is controlled by two input  
signals and produces control signals for the pair of loudspeakers,

wherein the input signals are weighted differently with respect to  
amplitude and phase and the control signals are equal to the sum of the weighted  
input signals, so that a radiation characteristic of the pair of loudspeakers depends  
on the weighting of the input signals.

2. Sound system according to claim 1, wherein the at least one signal processing  
device includes:

two adder units, each adder unit having first and second inputs and an  
output connected to one loudspeaker of the pair of loudspeakers,

at least two first phase shifters and at least two first coefficient units, with  
a respective first phase shifter connected in series with a respective first  
coefficient unit,

at least two second phase shifters and at least two second coefficient units, with a respective second phase shifter connected in series with a respective second coefficient unit,

wherein a first of the two input signals is supplied to the first input of one of the adder unit through a first phase shifter and a first coefficient unit and to the second input of the other adder unit through a second phase shifter and a second coefficient unit, and

wherein the other input signal is supplied to the first input of the other adder unit through another first phase shifter and another first coefficient unit and to the second input of the one adder unit through another second phase shifter and another second coefficient unit.

3. Sound system according to claim 2, wherein each of the first phase shifters and each of the second phase shifters have respective identical phase shifts, and wherein each of the first coefficient units and each of the second coefficient units each have respective identical attenuation/amplification coefficients.
4. Sound system according to claim 2, wherein the first and second phase shifters produce frequency-independent phase shifts.
5. Sound system according to claim 1, wherein the phase can be shifted and the phase shift is adjustable.
6. Sound system according to claim 1, wherein the four loudspeakers are arranged in pairs, with a first pair of loudspeakers arranged between the other pair of

loudspeakers and a main radiation direction of a loudspeaker of the first pair adjusted so as to point away from a main radiation direction of the other loudspeaker of the first pair towards a respective loudspeaker of the other pair of loudspeakers at a predetermined angle with respect to a direction perpendicular to an imaginary line connecting the four loudspeakers.

7. Sound system according to claim 6, wherein a main radiation direction of a loudspeaker of the other pair of loudspeakers is oriented in a direction towards the first pair of loudspeakers at a predetermined angle with respect to the perpendicular direction.
8. Sound system according to claim 1, wherein the four loudspeakers are arranged in pairs, with a first pair of loudspeakers arranged next to the two pair of loudspeakers, and a main radiation direction of a loudspeaker of the first pair adjusted so as to point towards a main radiation direction of the other loudspeaker of the first pair at a predetermined angle with respect to a direction perpendicular to an imaginary line connecting the four loudspeakers, and a main radiation direction of a loudspeaker of the second pair adjusted so as to point towards a main radiation direction of the other loudspeaker of the second pair at a predetermined angle with respect to the perpendicular direction.
9. Sound system according to claim 1, wherein an additional signal processing device is connected before the other two loudspeakers that do not form the pair.
10. A sound system comprising:

a plurality of loudspeakers, with at least several of the loudspeakers arranged in pairs, and

at least one signal processing device connected before a respective pair of the loudspeakers,

wherein the at least one signal processing device is controlled by two input signals and produces control signals for the respective pair of loudspeakers,

wherein the input signals are weighted differently with respect to amplitude and phase and the control signals are equal to the sum of the weighted input signals, so that a radiation characteristic of the respective pair of loudspeakers depends on the weighting of the input signals.

11. A method of producing a sound pattern, comprising:

providing at least four loudspeakers associated in pairs,

processing stereophonic input signals to produce weighted input signals by adjusting an amplitude and a phase of respective channels of the stereophonic input signals, and

adding the weighted input signals to produce control signals for respective pairs of the loudspeakers,

wherein a radiation characteristic of the pair of loudspeakers depends on the weighting of the input signals.

12. The method of claim 11, wherein the phase is adjusted independent of a sound

frequency over at least a portion of a frequency range of a sound frequency.

13. The method of claim 12, wherein the phase is adjusted so as to be independent of the sound frequency over the entire frequency range of the sound frequency.